PHILOSOPHICAL TRANSACTIONS.

For the Months of *September*, *October*, and *November*, 1678.

The Contents.

Monſieur Caſſini's *Obſervation of the Lunar Eclips on the* 29 *Octob.* 1678. *Monſieur* Gallet's *Obſervation of the Solar Eclips on the* 11 *June*, 1676. *Extract of a Letter from Monſieur* Butterfield *about the making of Microſcopes, &c. Extract of a Letter from Mr.* Conyers *about his Improvement of Sir* Samuel Moreland's *ſpeaking Trumpet. An Account of two Books:* I. *A Diſcourſe of the State of Health in* Jamaica, *&c. by Dr.* Thomas Trapham. II. Catalogus Stellarum Auſtralium: *by Mr.* Edmund Halley.

Clariſſimo Viro
Domino Nehemiæ Greuio Regiæ Societatis à Secretis
Jo. Dominicus Caſſinius S. P. D.

CUM nuperæ Lunæ Eclipſis à nobis hîc in obſervatorio regio diligentiſſime fuerit obſervata, ejus exemplar ad te, Vir Clariſſime, mittendum duxi regiæ Societatis Aſtronomis, imprimiſque D. Flamſtedio, *communicandum. Inſerviet illa Meridianorum differentiæ* Pariſios *inter &* Londinum *exactè definiendæ, ſi vobis par cœli ſerenitas ejuſdem obſervandæ opportunitatem obtulerit, &c.*

Obſervatio Lunaris Eclipſis die 29 Octobris 1678.

Phaſes lunæ & macularum ſecundum denominationem Riccioli.	*In obſervatorio Regio*						*In Collegio Claromontano.*		
	Infra			*Supra*					
	h	′	″	h	′	″	h	′	″
Incipit Umbra	6	43	30	6	43	40	6	43	54
Grimaldi lymbus ſequens		45	0					45	29
Gallileus		46	0		46	0			
Finis Gallilei		47	0						
Merſenus		48	20						
Chorda Eclipſis dig. 6.					49	0			
Gaſſendi initium		50	50		50	50			
Gaſſendi medium					51	30		51	37
Schikardi initium		51	43						
II. digiti Ecliptici					52	0			
Ariſtarchi initium		52	50						
Ariſtarchi medium					53	10		53	7
Morinus									
Ariſtarchi & Morini finis		54	0						
Caputanus ſive oculus draconis		56	0						
Digiti III.					56	30			
Chorda 9 digitorum					57				
Initium terræ pruinæ & Copernici		58	54						
Copernici initium					59	10			
Copernici medium	7	0	0	7	0	0		59	30
Copernici finis	7	0	55	7	0	55			
Pitheæ initium	7	1	50	7	1	40			
Pitheæ finis		2	30						
Caput Virginis		2	45		2	40	7	3	18
Harpalus		2	55						
Tychonis initium		4	20		4	20			
Tychonis medium		5	0					5	48
Tychonis finis		5	55						
Eratoſtenes		6	20						
Digiti V.					6	50			

Pro-

	h	′	″	h	′	″	h	′	″
Promontorium inter Virginem & Platonem	7	7	0						
Inſula in ultimo ſinuum mediorum		7	30						
Clara ſequens Tychonem		8	31						
Digiti VI.					11	20			
Tymocharis		11	48						
Platonis initium					13	20		13	29
Platonis medium					13	40			
Platonis finis & initium Manilii		14	0						
Platonis finis					14	40			
Manilius					14	50		15	4
Finis Manilii		15	12						
Dionyſii initium		17	15						
Dionyſius					17	25			
Menelaus					18	10		17	59
Dionyſii finis & Menelai initium		18	28					18	11
Plinius incipit	7	20	56						
Plinius				7	21	10	7	21	51
Picolomineus ſeu clara ſupra annulum		21	30						
Initium fracaſtorii ſeu annuli		23	0		23	5			
Initium Poſſidonii		23	55					24	38
Finis fracaſtorii		24	25						
Clara ante angulum promontorii acuti					24	45			
Angulus promontorii acuti		25	10						
Digiti IX,					26	10			
Palus Somni		28							
Initium Endimionis		29	20						
Initium Taurentii		30	30						
Angulus cornuum cum parallelo 77 15					30	40		31	16
Hermetis initium		31	5						
Finis Taurentii ſive capitis Serpentis		31	40						

	h	'	"	h	'	"	h	'	"
Hermetis finis	7	32	0						
Proclus		32	20						
Lymbus maris Caſpii		32	29		33	3		33	10
Macula Inferior		33	5						
Initium Langeni		34	24						
Meſſala		34	40						
Finis Langeni		35	40						
Peninſula in Caſpia		37	50						
Finis Caſpiæ		37	50		37	50		38	18
Macula oblonga f.		39	16						
Finis		40	41		41	0		41	41
								ſubtrah	13'
Initium emerſionis	9	21	30	9	21	30		21	5
Grimaldus		22	44					22	10
Grimaldi finis		23	40		23	40			
Gallileus		24	35						
Mare humorum		28	15						
Schikardi medium		29	0						
Ariſtarchi initium		29	44					29	41
Ariſtarchi medium					30	20			
Ariſtarchus totus		30	25						
Gaſſendus totus		31	0						
Kepleri initium					31	40		31	6
Keplerus totus		32	24						
Morinus		30	0						
Finis inſulæ Kepleri		34	22						
Capuanus totus		34	40						
Initium terræ pruinæ		35	43						
Virgo		37	0						
Aura inter Pitheam & Keplerum					37	20			
Harpalus & clara ante Copernicum	9	37	34						
Digiti III.					37	40			
Bullialdus		38	30						
Initium Copernici					39	0		38	36
Tychonis initium		40	0					40	22

Co-

	h	′	″	h	′	″	h	′	″
Copernicus totus	9	40	18						
Pitheas					40	30			
Tychonis medium		41	0		41	10			
Tychonis finis					42	10			
Digiti IV,					42	40			
Tymocharis totus		45	30						
Plato incipit					45	30		45	0
Digiti V.					47	0			
Plato totus		47	0						
Plato totus					47	30			
Inſula ſub ſinu medio		50	0						
Finis ſinus medii		50	50						
Archimedes		51	37						
Digiti VI.					52	0			
Manilius					54	0		53	52
Fretum		54	22						
Abiſeldeæ initium		54	40						
Abiſeldeæ finis		55	30						
Ariſtoteles & Eudoxus toti		56	0						
Digiti VII.					56	20			
Dionyſii initium		57	12						
Menelaus		57	50		57	40		57	16
Dionyſii medium					58	30			
Menelaus totus		59	0						
Dionyſius totus	10	0	0						
Digiti VIII.	10	1	30						
Oſtium lacûs mortis				10	2	0			
Plinius					2	15	10	1	28
Promontorium ſupra Dionyſium		3	0						
Plinii finis Poſſidonius		3	40						
Promontorium acutum					5	30			
Hermes		6	0						
Digiti IX.					6	15			
Chorda umbræ 8 digitorum					9	30			
Meſſala		11	0						
Initium maris Caſpii		13	30		12	10		11	30
Langrenus totus		16	0						

Chorda

	h	′	″	h	′	″	h	′	″
Chorda ſex digitorum	10			14	0				
Caſpii prior finis				16	50		16	44	
Caſpii alter finis		17	33	17	25				
Albedo in mari Caſpio		18	15						
Finis totalis		20	0	20	10		20	42	

Monſieur *Gallet*'s Obſervation of the Solar Eclipson the 11*th* of *June*, 1676.

Obſervatio Solaris Eclipſis Acta Avenione die 11. *Junii* 1676.

Ante Eclipſin.

DIEBUS præcedentibus, locum aptiſſimum elegimus in quo aëre puro frueremur, videlicet Conventum RR. PP. *Carmelitarum diſcalceatorum, qui reſpectu Civitatis Aven. ad ortum vergit & mœnia ſtringens aëre, fumo & vaporibus urbanis libero gaudet; in medio horti cameram obſcuram tapetibus conſtruximus, & in eâ inſtrumenta ad obſervationem neceſſaria ritè collocavimus.*

Tuboſpicillum aptavimus lente oculari concavâ & objectivâ convexâ inſtructum, duplicem habens motum firmo ſuſtentaculo, verticalem ſcilicet & horiſontalem, affixam tabellam immobilem firmatis cochleis ſecum circumducens oculari vitro ſemper parallelam chartâ candidiſſimâ indutam, in qua ſolarem ſpeciem, diſtantiâ tuboſpicilli determinatam deſcripſimus, hujus diametrum circulis concentricis in duodecim digitos diviſimus, & quemlibet digitorum in partes ſexageſimas.

Loco quadrantis qui pluribus indiget cautionibus & nimium obnoxius eſt vacillationibus, in hac præcipuè regione in qua ferè ſemper ſpirat Aquilo qui perpendiculum agitat, Gnomonem ad captandas umbras Solis in partes 400. *optimè diviſum diſpoſuimus ita ut liberè moveretur ſitum verticalem ope perpendiculi conſervans. Tandem horologium rotatile minuta prima & ſecunda indicans motu penduli cum cycloide præparavimus.*

Tempore